	Type	Hits	Search Text	DBs
1	BRS	1	6294281.pn.	USPAT; US-PGPUB
2	BRS	645	429/2,19,43.ccls.	USPAT; US-PGPUB
3	BRS	2957	wang.in. and chen.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT
4	BRS	6	(wang.in. and chen.in.) and (fuel adj cell)	USPAT; US-PGPUB; EPO; JPO; DERWENT
5	BRS	268	(fuel adj cell) and enzyme	USPAT; US-PGPUB; EPO; JPO; DERWENT
6	BRS	2	((fuel adj cell) and enzyme) and (lipase adj enzyme)	USPAT; US-PGPUB; EPO; JPO; DERWENT
7	BRS	1449	lipase adj enzyme	USPAT; US-PGPUB; EPO; JPO; DERWENT
8	BRS	3	((implantable implanted biological) with (fuel adj cell)) and enzyme and fat	USPAT; US-PGPUB
9	BRS	133	(implantable implanted biological) with (fuel adj cell)	USPAT; US-PGPUB; EPO; JPO; DERWENT
10	BRS	5	((implantable implanted biological) with (fuel adj cell)) and fat	USPAT; US-PGPUB; EPO; JPO; DERWENT
11	BRS	39705	fat and (hlycerol (fatty adj acid))	USPAT; US-PGPUB; EPO; JPO; DERWENT
12	BRS	57769	glycerol and hydrogen	USPAT; US-PGPUB; EPO; JPO; DERWENT
13	BRS	75888	(fatty adj acid) and hydrogen	USPAT; US-PGPUB; EPO; JPO; DERWENT
14	BRS	7780	(fat and (hlycerol (fatty adj acid))) and (glycerol and hydrogen)	USPAT; US-PGPUB; EPO; JPO; DERWENT
15	BRS	7780	((fat and (hlycerol (fatty adj acid))) and (glycerol and hydrogen)) and ((fatty adj acid) and hydrogen)	USPAT; US-PGPUB; EPO; JPO; DERWENT
16	BRS	7780	(fat and (hlycerol (fatty adj acid))) and (glycerol and hydrogen) and ((fatty adj acid) and hydrogen)	USPAT; US-PGPUB; EPO; JPO; DERWENT

	Type	Hits	Search Text	DBs
17	BRS	66	((fat and (hlycerol (fatty adj acid))) and (glycerol and hydrogen) and ((fatty adj acid) and hydrogen)) and electricity	USPAT; US-PGPUB; EPO; JPO; DERWENT
18	BRS	1	((((fat and (hlycerol (fatty adj acid))) and (glycerol and hydrogen) and ((fatty adj acid) and hydrogen)) and electricity) and (blood (bodily adj fluid))) and (fuel adj cell)	USPAT; US-PGPUB; EPO; JPO; DERWENT
19	BRS	14	(((fat and (hlycerol (fatty adj acid))) and (glycerol and hydrogen) and ((fatty adj acid) and hydrogen)) and electricity) and (blood (bodily adj fluid))	USPAT; US-PGPUB; EPO; JPO; DERWENT
20	BRS	100	429/2,43.ccls.	USPAT; US-PGPUB
21	BRS	0	429/2,43.ccls. and enzyme and fat	USPAT; US-PGPUB
22	BRS	22	429/2,43.ccls. and enzyme	USPAT; US-PGPUB
23	BRS	20	(429/2,43.ccls. and enzyme) and hydrogen	USPAT; US-PGPUB
24	BRS	1	6294281.pn. and hydrogen	USPAT; US-PGPUB

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     (FILE 'HOME' ENTERED AT 12:04:18 ON 29 MAY 2003)

     FILE 'CAPLUS' ENTERED AT 12:04:47 ON 29 MAY 2003
L1            16 S FUEL CELL AND FAT
L2             0 S L1 AND ENZYME
L3           118 S FUEL CELL AND ENZYME
L4           118 S L3 AND ENZYME
L5             0 S L3 AND LIPASE ENZYME
L6             0 S L3 AND BETA OXIDASE ENZYME
L7             1 S BETA OXIDASE ENZYME
L8            67 S FAT AND (LIPASE ENZYME)
L9             1 S ((FATTY ACID) OR (GLYCEROL)) AND (BETA OXIDASE ENZYME)
L10            0 S L8 AND L9
L11         7343 S ((FATTY ACID) OR (GLYCEROL)) AND HYDROGEN
L12            0 S L4 AND L11
L13        48995 S FAT AND (GLYCEROL OR (FATTY ACID))
L14          420 S L13 AND L11
L15            1 S L14 AND ELECTRICITY
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=> d l15 abs ibib 1-
YOU HAVE REQUESTED DATA FROM 1 ANSWERS - CONTINUE? Y/(N):y

L15 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2003 ACS

AB The author discusses in detail the methods of determining the strengths of the alkalies in common use by the launderer. In certain instances the chief reason for-using alkali is to effect a saving in the amount of soap that is employed. The statement frequently made that one of the effects of alkali is to saponify the **fats** which are always present to some extent in laundry articles. has no great foundation in fact, except when free **fatty acids** are present. Its action depends on the property, which alkalies possess, of forming emulsions when shaken with **fats**. Some small chemical action of the nature of saponification is necessary for the formation of an emulsion. Oils or greases free from saponifiable matter yield no emulsion when shaken with aqueous solutions of alkalies. Regarding the relative values of different alkalies as emulsifying agents, experiments with caustic soda, ammonia, sodium carbonate, borax, and sodium bicarbonate show that so far as the first 4 are concerned there is practically no difference. An emulsion made with borax is, however, more lasting than any. Sodium bicarbonate can scarcely be called an emulsifying agent. Another reason for the use of alkali in the laundry is to be found in the tendency of some soaps to form insoluble or sparingly soluble acid soaps, as the result of the action of water. These may give rise to spots and marks which often do not show up until the washed article is ironed. The addition of alkali will often prevent the formation of such acid soaps. The use of caustic soda is to be condemned because of its solvent action upon wool. Borax and ammonia show less solvent action than does caustic soda. The alkalies affect silk in the same manner as they do wool, but their action on cotton and linen is much less harmful. Direct experiments have proved, however, that the use of much alkali will disintegrate cotton and linen in a much shorter time than that in which anything like the same change could be produced by the action of soap and water. The subject of bleaching agents is of considerable importance to those engaged in laundry practice. No quick bleaching agent should ever be employed, but when the launderer is asked to remove stains in one washing, some other than the usual detergents must be used. The author mentions sixteen in common use. Chlorinated lime, however, is the one usually employed. Bleaching by means of reducing agents is less permanent than that accompanying further oxidation. Bleaching by light is the most desirable of all processes and causes the least possible deterioration of fabrics. The methods of bleaching with potassium permanganate, sulphurous acid, chlorinated lime, **hydrogen** peroxide, sodium peroxide and sodium hydrosulphite are discussed by the author and the recommendation made that bleaching of any kind should be resorted to as seldom as possible. Of the behavior of soap as a detergent no satisfactory explanation can be given in the present state of our knowledge. Concerning the chemical action certain facts about the relation of soap to water are known which may have a definite bearing on its action as a detergent. If a neutral soap, perfectly free from excess alkali and uncombined **fatty acid**, is dissolved in a little hot water and a considerable amount of distilled cold water is added, a turbidity is produced, which is due to the formation of insoluble acid soaps. Caustic soda goes into solution. Only

a small part of the soap is affected by this change; and the amount of alkali liberated would speedily be converted into sodium carbonate by the carbonic acid present in the water. As a general rule soaps made from the **glycerol** compounds of **fatty acids** having a high molecular weight are more readily hydrolyzed than those from **fats** having a lower molecular weight. Hydrolysis varies with the nature of the soap, the temperature, and the amount of water added. Sodium oleate is more affected in the cold than at higher temperatures. In a general sense the more readily hydrolyzed soaps, so far as strictly comparable soaps are concerned, are the best detergents, but it is not necessarily true that the greater detergent power of soaps having **fatty acids** of high molecular weight is due to increased hydrolysis alone. A comparison of the detergent properties of the oleates with other soaps of common **fatty acids** shows the former to have greater detergent power both in hot and in cold solutions. This cannot be due to increased hydrolysis, for the same superiority is found by using equivalent amounts of the various soaps in solution in strong alcohol. The author considers the differences to be due to the greater inherent emulsifying power of the oleates. The influence which soap exerts upon the state of division of dirt, has an important bearing upon the problem of washing with soap and water. To understand this the author gives by way of illustration the behavior of different-sized particles suspended in liquids taking finely divided clay, "Faraday's gold," and logwood as examples. An idea of the way in which soap acts as a detergent may be gained by observing the fluid left after washing a dirty cloth in soap and water. The coarser dirt sinks to the bottom and the water remains black for an indefinite time; and if examined under the microscope countless minute particles would be shown in a constant state of oscillation. Such a fluid when sealed would remain thus indefinitely. This oscillatory motion of minute particles is spoken of as "pedesis." The smaller the size of the particles, the more rapid are their movements. In the case of particles of equal size those having the lower sp. gr. move more quickly than those of greater density. It is found as a general rule that solutions of acids, salts, and strong alkalies decrease pedesis and favor the collection of separate particles into groups, and all such solutions as have an influence in this direction are conductors of **electricity**. The effects of different solutions are roughly proportional to their conductivities. The author gives the following experiment as an illustration of the manner in which pedesis acts in the removal of dirt from fabrics. A few fibers from a dirty piece of linen were placed in cold distilled water under the microscope. A small percentage of the adherent dirt particles was loosened and exhibited oscillatory movements. The covered glass cell in which the fibers were placed was arranged with small side tubes so that different liquids could be allowed to flow gently into the cell and bathe the fibers. When soap solution was substituted for water, the individual particles in the groups of dirt adhering to the fibers were seen to start oscillating through small distances, but these increased as more thorough removal of the grease left the particles free to separate. The soap solution was now washed away with distilled water and the fairly intact groups and their constituent particles continued their movements. A 1% solution of salt was then made to flow through the cell, and as a result, the free particles had united in groups or settled upon the fibers, and the movement ceased. Water was next washed through the cell and then soap

solution. In about 3 hrs. all the groups had broken up into free particles, which persisted in active oscillations. Similar experiments, made with alkaline solutions stronger than necessary to assist soap as an emulsifying agent, and to prevent the formation of acid soaps, showed that
pedesis was retarded, though to a less extent than with common salt. The results of a large number of experiments leave a doubt as to whether any substances promote pedesis, but comparative experiments show that the alkaline oleates are the most favorable substances to employ for exhibiting it. Time is an important element to be considered if full advantage is to be taken of these oscillatory movements as assistants in ridding fabrics of dirt. What soap, alkali, high temperatures, and mechanical agitation can accomplish may often be equally well done in the cold with less soap if a sufficient length of time can be spared for the operation. It has often been stated that potash soaps are better than soda soaps for use on wool because they leave the wool in a better condition. Comparative experiments with K, Na, and NH4 oleates in a neutral condition do not show any appreciable difference in their behavior
so far as the final condition of the wool is concerned. It is possible that the alleged advantage in the use of soft soaps for flannels is due to
the greater solubility of K salts of mixed **fatty. acids**
, admitting of the use of more soap at a lower temperature, or to the small amount of free alkali present as a rule in the older forms of soap, or to the fact that soft soaps were at one time made from oils which contained a high percentage of the **glycerol** compounds of oleic and analogous acids. It has been suggested that the **glycerol** present in soft soaps has some good effect on wool, but just as good results have been obtained with neutral soaps free from **glycerol**
. Experiments on the shrinkage of flannels have shown that after the first shrinkage had been completed, exposure for some hours, without agitation, to the action of water at 32.degree. produced no further change, but the same treatment with vibration caused a marked shrinkage. The addition of 0.05% Na2CO3 caused a great shrinkage. An average strength of soap solution at 32.degree. was not found to have any marked action. The general conclusion appears to be that to retard shrinkage, the temperature of the washing fluid should not exceed 32.degree., only neutral soaps should be used and all agitation avoided. A thorough rinsing after washing should always be made. To remove ingrained stains such as sometimes occur on articles which have come in contact with machine grease, the author recommends that fresh grease in the form of oleic acid be rubbed in and then a liberal supply of soap applied to the stain, or a little weak ammonia solution added so as to form a strong solution of ammonia soap in most intimate contact with the fibers and dirt. The author also gives a discussion of the simple tests and methods for the identification and approximate separation of the common textile fibers with which the launderer has to deal.

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AUTHOR(S): Jackson, H.
SOURCE: J. Soc. Arts. (1908), 55, 1101-14,1122-32
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